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Training non-physician clinicians to deliver surgical care in Africa

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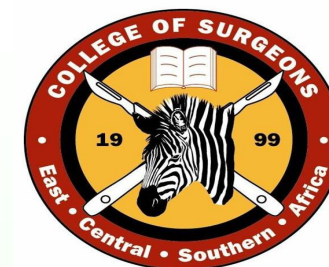
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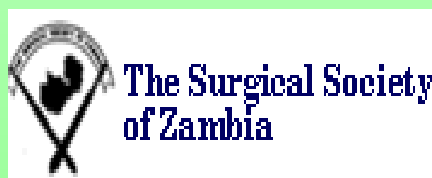
Training non-physician clinicians to deliver surgical care in Africa

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COSECSA, 6th May 2011, London



Malawi College
of Medicine



Surgical Society of Zambia



University of Nijmegen
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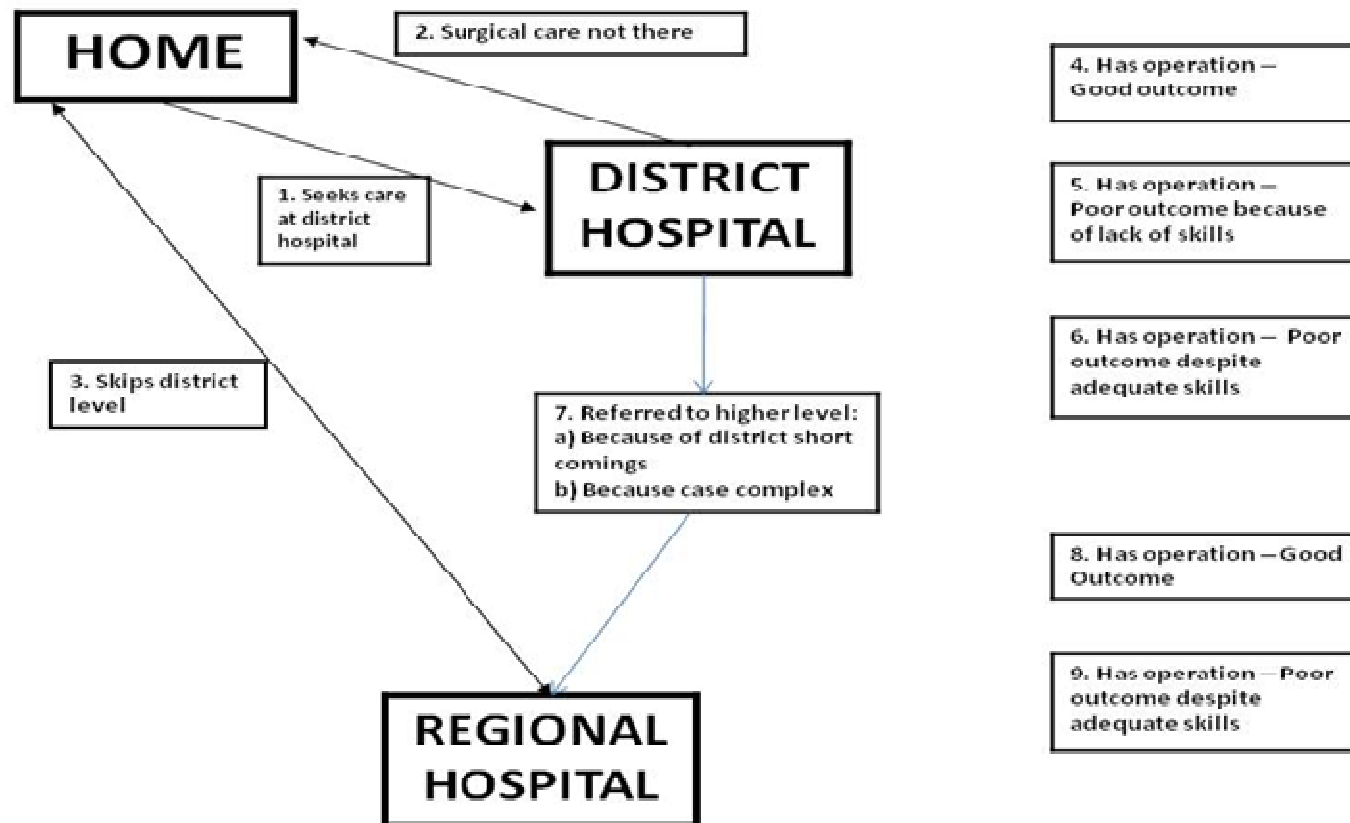
This presentation

1. Why invest in training Clinical Officers to do surgery in Africa?
2. What is the COST-Africa (clinical officer training) research project?
3. Why is it important to (and how can we) demonstrate the value of surgery?

1 Why train Clinical Officers to do surgery in Africa?

- Specialist surgeons *can* (and *should*) be the cornerstone of surgical care in Africa
 - but are not routinely providing surgical care *at the district level* in many (most?) sub-Saharan African countries
- We need to ***train*** more specialist surgeons ***in*** Africa (not just *for* Africa) ***and retain*** them
 - but can (should?) we retain them at the district level? NO
 - (i) national poverty, (ii) market forces + (iii) rights to migrate
 - Is it appropriate??
- What are the consequences of not having surgically trained health workers at district hospitals
 - inadequately trained staff (doctors – like me) doing surgery
 - needless suffering and death in rural areas – patients hours /days from surgical centres – due to conditions amenable to surgery

The surgical care-seeking pathway in Africa

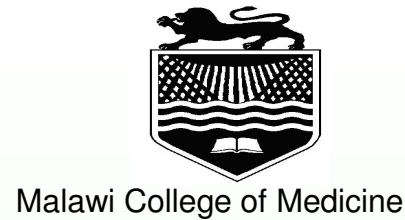
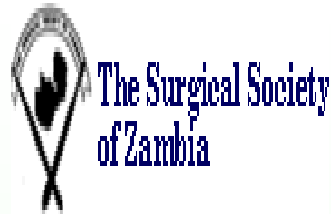


Clinical Officers – what are they?

- COs = trained Non-Physician Clinicians (NPCs)
 - circa 3 years full-time training already enables them to do
 - clinical diagnosis and therapeutics (ie they are not nurses!)
 - minor surgery (so increasing their skills is a matter of degrees)
 - they are trained to carry out most of the clinical tasks undertaken by doctors, except major surgery (but they sometimes do Caesar sections)
- Advanced Clinical Officer training programmes exist in anaesthesia (several countries) and orthopaedics (Malawi)
- NPC surgical training programmes in several African countries, e.g. Mozambique (Bergström et al.) – but not yet adequately evaluated
- There is no corresponding qualification in Europe/US [unlike nurses + doctors] therefore retention in Africa will be easier

If we train Clinical Officers to do surgery where do Specialist surgeons fit in?

- Specialist surgeons are central to every component of a Clinical Officer surgical training programme
 - (i) Training
 - (ii) Supervision
 - (iii) Quality assurance
- Surgery in Africa needs to be specialist surgeon-led like elsewhere
- Can surgical training of Clinical Officers contribute to the development + retention of specialist surgeons in Africa?
 1. Provide surgeons with a new role as **trainers, supervisors** and **quality assurers** of Clinical Officers (and trainee specialists)
 - these roles need to be remunerated as part of a retention package
 2. Free up surgeons to focus on delivering **specialist surgery**



2. **COST** (Clinical Officer Surgical Training) **Africa**

A 5 year research collaboration between 2 African and 2 European institutions, funded by the EU (FP7) and supported by COSECSA

OBJECTIVES

1. Map and assess district hospital surgical capacity and facility information systems in Zambia and Malawi
2. Design and implement *regulatory approved* and *ethically approved* surgical training interventions for Clinical Officers in Zambia and Malawi
3. Measure the effectiveness and impact of the interventions at the levels of (i) health worker, (ii) patient, (iii) family, (iv) facility and (v) district population.
4. Establish the cost-effectiveness (cost per DALY averted) of the intervention.
5. Support national and regional policy makers in developing career paths and retention strategies for surgically trained COs, *and* specialist surgeon-trainers

Train Clinical Officers to do what?



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SOME EXAMPLES

- understand and apply principles of advanced trauma life support and care
- select and stabilise patients prior to transfer to central / referral hospitals
- acquire and utilise specific surgical competencies, ie to do major life-saving surgery
- manage a surgical department and conduct hospital case audits
- record data record accurately in patient registers, notes and log books
- apply basic research skills in the area of outcome measurement, data compilation and analysis

Non-specialist surgically treatable conditions

1. Maternal : major haemorrhage (APH, PPH, Ectopics) + uterine obstruction
2. Acute (often inflammatory) abdominal conditions
3. Major trauma
4. Elective procedures

Who will decide what COs will be allowed do?



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- The surgeons in Zambia and Malawi – Surgical Society of Zambia and College of Medicine Malawi (COSECSA members) – will
 - develop the curriculum and
 - submit it for approval to the respective national Medical Councils
- COST Africa will have a High Level Advisory Committee, comprising COSECSA members, other surgeons, policy makers and ethical specialists
- COST-Africa is a cluster randomised controlled trial (RCT) research study, which will be subject to ethical approval by national ethics committees in Malawi, Zambia and Ireland
 - Also EU approval and Data Safety Monitoring Boards
- *Additional slides at end on specific skills / surgical interventions.*

3. Training and Research Approach / Methods



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Training model

- **Zambia:** classical front-loaded training college for 2 years, with attachments at national teaching hospital, followed by 6 month provincial hosp internships
- **Malawi:** in-service training model (surgeon trainers will visit district / rural hospitals for 3 days per month), with short periods at Central Hospital

Research / Evaluation -

- Why do (and spend money) on a RCT ? – ‘we know surgery saves lives !’
 - to make the case to donors to invest in surgery in Africa – donors like DALYs!
 - for too long surgery has lacked the funding going to HIV, malaria, TB, etc. – lack of evidence on impact and comparative value for money is one reason
 - Surgeons and Epidemiologists need to work together on this
- COST-Africa will be evaluated through a cluster randomised controlled trial
 - 10 intervention and 10 control hospitals in Zambia
 - 8 intervention and 8 control hospitals in Malawi

Evaluation levels (1)



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Multi level Evaluation	Indicators / outcomes
<p><i>A. Patient level</i></p> <p>Health impact</p> <p>Quality of life</p> <p>Costs</p>	<p><u>Clinical outcomes:</u></p> <ul style="list-style-type: none"> •Reduced referral rate to Central Hospitals •Improvement of pre-referrals stabilisation •Mortality figures for a) procedures carried out at district hospital and b) those referred to Central Hospital •Wound infection rates and wound healing / dehiscence rates (Dindo-Clavien index) •Pain, quality of life and functional measurements •Within facility case mortality (plus follow up to community for long term outcomes in sentinel district) •Pregnancy outcomes (mother and baby) <p><u>Non-clinical outcomes / factors:</u></p> <ul style="list-style-type: none"> •Demographic factors (sex, age, socioeconomic status) •Geographical factors (residence and distance to facility) •Time and cost of travel



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Evaluation levels (2)

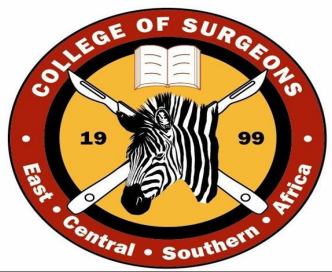
B. Clinical Officer (as above)	<ul style="list-style-type: none"> ▪ Assessments of knowledge, skills and outcomes ▪ Performance: Quantity and average patient outcomes
C. Health facility changes surgical & general	<ul style="list-style-type: none"> • Surgical audits • Clinical protocols and guidelines being used • Surgical department management indicators • Non-surgical outcomes <ul style="list-style-type: none"> ○ Health worker changes, e.g. task-shifting and sharing; and workload ○ Changes in volume of surgical and other (non-surgical) services delivered
D. Family	<ul style="list-style-type: none"> • Time away from work / loss of income • Transport costs
E. Population impact	<ul style="list-style-type: none"> • Estimates of reductions in maternal mortality ratios, based on population norms for obstetrical (and other surgical?) complications rates (district population study?). • Model levels of benefits that a scaled up national training programme could achieve at a population level

Conclusion



Building surgical capacity at the district hospital is
The key to health systems strengthening in Africa!

1. What makes a hospital? Maurice King 1960s
2. Global policy makers and HSS researchers have lacked the perspective of the rural dweller *and* policy maker in Africa
3. Surgical care at the district level
 - a) will not only tackle a huge unmet surgically avoidable burden of disease
 - b) will also attract rural populations to benefit from other health interventions *and* build system-wide capacity in district hospitals – staff and skills
4. Coming full circle
 - a) Doing good research – which we will see in the Lancet in 5 years time
 - b) *and* SAVING LIVES – while we do the research and into the future !



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What skills /conditions (1)?



- Resuscitate and stabilise patients prior to transfer to Central / Provincial / Specialist hospital for management of complex cases
- Reduce closed fractures, Steinman pin insertion, skeletal traction, Tendon repairs, distal limb amputations
- Insert drains for traumatic and spontaneous Pneumo and Haemothoraces,
- Emergency Obstetrical Care:
 - Caesarean sections,
 - emergency hysterectomies,
 - ectopic pregnancy,
 - breech, vacuum and complicated delivery

What skills /conditions (2)?



- Laparotomies and subsequent procedures for common acute abdominal emergencies – such as ?:
 - peritonitis (lavage), pelvic inflammatory disease (PID), appendicitis
 - repair of perforations (bowel and bladder) and
 - intestinal obstruction (incl bowel resection and anastomosis / colostomies),
 - uterine fibroids, ovarian cyst and tumours
- Elective and strangulated hernias
 - inguinal, femoral and abdominal
- Circumcisions
- Burns care & skin grafting
- septic arthritis and osteomyelitis